MAYOR AND COUNCIL AGENDA

NO. 11 DEPT.: / City Clerk's Office DATE: July 8, 2004

ACTION:

Briefing on Phase I of the Rockville Business Incubator Feasibility Study by Sally Sternbach, Executive Director of Rockville Economic Development, Inc. (REDI)

ACTION STATUS:

FOR THE MEETING OF: 7/12/04

INTRODUCED

PUB. HEARING

INSTRUCTIONS

APPROVED

EFFECTIVE

ROCKVILLE CITY CODE,

CHAPTER

SECTION

☐ CONSENT AGENDA

RECOMMENDATION:

IMPACT: ☐ Environmental ☐ Fiscal ☐ Neighborhood ☐ Other:

BACKGROUND:

Rockville Economic Development, Inc. (REDI) engaged Snyder Consulting Services and DDI Associates to evaluate the feasibility of establishing a high tech business incubator in Rockville for the purpose of anchoring Rockville's future high tech economic development. The scope of the study was to analyze the market demand for such an incubator, including the relationship to Montgomery County's existing incubator; determine what industry focus would be best suited to support Rockville's future economic development; examine the economic benefits of such an incubator and its fit with the economic development objectives of the City and County; and, finally, develop an initial framework for implementing the incubator, including programs, corporate structure, location and potential sources of funding. This is to be the first phase of a two-phase study, the second part of which will be the development of a business and implementation plan for the incubator.

The presentation will include:

- An explanation of the purposes and benefits of a business incubator
- The role that such an incubator could play in the Rockville business community
- The key findings of Phase I, including the focus on health care and life science sectors with emphasis on bioinformatics (the application of computational tools to biological , medical and health data)
- Next steps

PREPARED BY:

Claire J. Funkhouser for Sally Sternbach

Date 7/8/04

LIST OF ATTACHMENTS:

Cover letter from Sally Sternbach

Rockville Technology Business Incubator Feasibility Study – Phase I Final Report

Rockville
Economic Development, Inc.
Known for the Companies We Keep

To: City of Rockville Mayor and Council
From: Sally L. Sternbach
RE: Rockville Business Incubator Feasibility Study, Phase I
Date: June 30, 2004

Rockville Economic Development, Inc. (REDI) is pleased to share with you the Incubator Feasibility Study, Phase I report. The study was done by Robert Snyder of Snyder Consulting Services and Duc Duong of DDI Associates. They had the benefit of input from an Advisory Committee that included County (Henry Bernstein and John Korpela), State (Heidi Shepard), City (Larry Giammo), Board (Stephen Cain, Larry Cunnick, Dale Cyr) and citizen (David Kaye, Clifford Lanham and Robin Weiner) representation. The REDI Board of Directors also met several times with the researchers and formally accepted the report by unanimous vote at their June 23, 2004 meeting with the following provisos:

- That this cover letter be added to the report as Addendum III.
- That this cover letter communicates the Board's interest in remaining flexible on the size of the proposed incubator. Fiscal realities, real estate options and risk mitigation efforts may suggest a solution that is other than the recommended 20,000 square feet. The Board wanted to allow the researchers sufficient flexibility to craft a practical solution if the "ideal" solution described in the study were not feasible.

We expect to begin work shortly on Phase II. It will provide operational and financial plans including projected financial statements and capital needs, detailed recommendations on program services and management structure, and an implementation timeline.

The entire study is funded in part by the Maryland Economic Development Assistance Authority and Fund (MEDAAF); the remaining funds were provided by the City of Rockville through the REDI budget.

ROCKVILLE TECHNOLOGY BUSINESS INCUBATOR

FEASIBILITY STUDY—PHASE I

FINAL REPORT

Prepared by

Robert G. Snyder, Snyder Consulting Services
and
Duc Duong, DDI Associates

Submitted To

Rockville Economic Development, Inc.

June 21, 2004

Snyder Consulting Services
7108 Exeter Road, Bethesda, Maryland 20814
Tel: 301-913-0268 Fax: 301-656-3157 Email: rsnyder283@aol.com

ROCKVILLE TECHNOLOGY BUSINESS INCUBATOR FEASIBILITY STUDY—PART I

EXECUTIVE SUMMARY

Prepared by Robert G. Snyder, Snyder Consulting Services, and
Duc Duong, DDI Associates

Submitted to Rockville Economic Development, Inc.
June 21, 2004

Rockville Economic Development, Inc. (REDI) engaged Snyder Consulting Services and DDI Associates to evaluate the feasibility of establishing a high tech business incubator in Rockville for the purpose of anchoring Rockville's future high tech economic development. The scope of the study was to analyze the market demand for such an incubator, including the relationship to Montgomery County's existing incubator; determine what industry focus would be best suited to support Rockville's future economic development; examine the economic benefits of such an incubator and its fit with the economic development objectives of the City and County; and, finally, develop an initial framework for implementing the incubator, including programs, corporate structure, location and funding. This is to be the first phase of a two-phase study, the second part of which will be the development of a business and implementation plan for the incubator.

Consultants (Snyder and DDI) performed an in-depth evaluation of the market for a Rockville incubator. An analysis of strengths confirms both the City and the County have strong positions compared to Maryland and the nation as a whole in both biotech and information technology. For Rockville in particular, the area of bioinformatics – the application of computational tools to biological, medical and health data – is a real strength, both now and for its future growth. A broad set of national economic development trends will drive this sector both locally and nationally: facilitating the development of new drugs through better screening and coordination of biological and patient data; controlling health care costs through better record keeping and error reduction; and improving patient care through better coordination of patient records and tracking drug usage and adverse health events. The prominence of both Rockville and the County in this sector lies both in the existing strength of its industry and the growing priority that federal agencies, including NIH, FDA and other HHS agencies, are placing on this sector. A Rockville incubator would also be able to utilize other important regional resources. These resources would include health care providers, to test and purchase innovative products developed by incubator companies and university health care programs that have expertise in bioscience and health care information management.

Two other industry areas could complement this life sciences and health care incubator. The first is an international focus—attracting small and medium size life

sciences and health care foreign firms that are looking to establish a U. S. presence. There is both a growing demand from foreign firms to have such an opportunity and a growing effort by County and State economic development offices to develop such relationships. Such an incubator in Rockville would be unique in the State and enhance these efforts. In addition, because of the County's prominence as a home for non-profit biomedical and health associations, the incubator could also serve as a place to grow new non-profit organizations in this sector.

In examining the demand for a Rockville incubator, care must be taken to assure that there is sufficient demand to accommodate an incubator located near the Maryland Technology Development Center (MTDC). Analysis indicates that a Rockville life sciences and health care incubator, with a bioinformatics focus, would be a positive addition to the County's "7 in 7" incubator strategy. It would build on the County's biotech strength, but be sufficiently unique to add a new dimension to the County's focus and complement its geographically oriented growth strategy. And it would also expand the incubator's market base to international companies.

The economic benefits of a Rockville incubator would be considerable. National studies demonstrate greater longevity of firms that are housed in incubators and a marked likelihood of these firms remaining in the region upon graduation. The experience of MTDC reinforces this expectation for a Rockville incubator – 80 percent of its firms have been founded by local entrepreneurs and 90 percent of the graduates have remained in the County. The Rockville incubator, with its emphasis on software development, would have a high likelihood of retaining its graduates in the City's growing supply of Class A office space.

In order for the Rockville incubator to be successful, it needs to have programs and a structure that will provide a first-rate experience for the firms that locate there. The incubator will need to have networking and professional services programs to support entrepreneurs and also more specialized programs that focus on the strategic, marketing, legal and regulatory needs for health care and international firms. Because of the special focus of the incubator, there should be numerous opportunities to establish partnerships and sponsorships with regional firms (e.g., law firms and health care providers) and organizations (e.g., federal agencies and universities) that will greatly enhance the quality of programs and the financial health of the incubator.

Due to its special focus and programs, the Rockville incubator needs a corporate structure and management that matches its special needs. Similar to most incubators in the State, the Rockville incubator should be managed by a non-profit organization. This will afford greater flexibility in procuring needed services, and it will assist in leveraging private sector resources for construction and operating costs. The incubator should have a Board of Directors, which will have the fiduciary responsibility for the incubator's operation, and a Board of Advisors, which will provide support for the programs offered. Because of its specialized services and fund raising activities, the incubator will need two full-time professional staff, an Executive Director and a Program Director.

The Rockville incubator should have at least 20,000 square feet of space with a state-of-the-art telecommunications infrastructure. Various lease and build-to-suit options should be considered based upon cost, timeliness, access to transportation and ability to make a statement about Rockville as a high tech center. One particularly inviting option currently available is the Thompson Dairy Barns and house on the King Farm property. In addition to its excellent location, this City-owned property would significantly reduce the cost of constructing a facility compared to using commercially owned property.

The next task in making the Rockville incubator a reality will be to develop a concrete plan for implementation. The next steps should include exploring location and lease/ownership options; discussing with the County its support for the incubator and coordination among its incubators; pursuing partnership and sponsorship opportunities, with the intent of gaining some preliminary commitments; discussing with TEDCO and DBED their support for the incubator; and developing a business plan that would provide a more detailed corporate and management structure, list of program services and financial statements for projected construction and operational costs.

A **Rockville Life Science and Health Care Incubator** will be an excellent resource for the long-term economic development of the City by:

- Creating a unique identity for Rockville that will differentiate it from other areas within the County and the State and give it high visibility;
- Building upon the City's and County's existing strengths in biotechnology;
- Tapping into a market with great demand and long-term growth potential;
- Differentiating it from other incubators in the County and State;
- Building upon the region's growing international demographics and desire for greater international economic development relationships;
- Tapping into other local resources, including health care providers, federal agencies, higher education institutions, and health associations.

ROCKVILLE TECHNOLOGY BUSINESS INCUBATOR FEASIBILITY STUDY—PART I

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INTRODUCTION

Technology incubators are well accepted vehicles for economic development nationally, in Maryland and in Montgomery County. Incubators provide a means of driving future growth by producing succeeding generations of high growth firms. Incubators help ensure the success of these firms by providing sound business advice and access to technical, business and financial resources. Incubators also help existing firms in the region through their networks of services and contacts. And incubators help attract and retain firms in the region by making a strong public statement that the community supports technology industry development.

In December, 2003, Rockville Economic Development, Inc. (REDI), then called the Greater Rockville Partnership, contracted with Robert Snyder of Snyder Consulting Services and Duc Duong of DDI Associates (Consultants), to perform a feasibility study to assess the potential for establishing a technology business incubator in Rockville. Given Rockville's historical role as a hub of Montgomery County's high tech economy, there appeared to be a good intuitive case for having an incubator located here. At the same time, given the existence of a large, successful County-owned incubator just outside the City's corporate limits and the key role that the County plays in the development of a broader incubator development strategy, REDI expressed a clear desire to assess any incubator initiative within the larger County context. It is within this context thatthe Consultants undertook the feasibility study.

Beyond analyzing various market forces, Consultants paid particular attention to how a Rockville incubator could differentiate itself from existing or planned incubators in the region. Such factors could include a unique industry focus that would build upon existing regional strengths, while at the same time adding a new dimension in an area of significant growth potential. A second important consideration was the possibility of linking a broad array of market segments as partners for the incubator--industry, federal labs and universities.

To conduct the feasibility study, Consultants utilized a variety of research methods to gather the information necessary to assess the overall high tech market in Rockville and the County, evaluate potential market segments on which to focus an incubator, and explore how a Rockville incubator would work within the context of both the City's and County's economic development strategies. Consultants analyzed economic databases of historical industry trends and reviewed published evaluations about industry trends and federal funding priorities. Consultants met with community leaders in industry, government, and non-profit sectors in order to gauge their opinions of the need for, and role of, an incubator. In particular, Consultants valued the insights and advice of the REDI Board and the incubator advisory committee assembled by the REDI Executive Director.

This feasibility study is the first phase of a two-phase study. In the next phase, a business plan will be prepared that will analyze site options and associated construction and operating costs as well as provide a clear roadmap for implementation.

I. MARKET ANALYSIS

The key factors in assessing the market demand for a high tech incubator in Rockville are: 1) the size and growth potential for Rockville's industry base, including its economic relationship to the growth dynamic of Montgomery County; and 2) the fit of such an incubator within the current and planned incubator environment in the region.

MARKET DEMAND

Rockville has been the historical hub of Montgomery County's high tech and biotech industry. Its mid-County location and home of the County's seat of government has meant that Rockville was the natural place for the County to begin to grow its high tech industry. The development in the 1980s of the Shady Grove Life Sciences Center (SGLSC) and larger R & D Village concept all occurred adjacent to Rockville. Montgomery College's flagship campus was (and is) in Rockville and the campuses of Johns Hopkins and the University of Maryland that were established at SGLSC in the 1980s continue to grow. Areas along roads such as Research Blvd., Gude Drive and Southlawn Drive have provided convenient and in many cases low-cost locations for early stage life sciences companies.

The presence of major U. S. Department of Health and Human Services (HHS) agencies in Rockville has been a significant driver of Rockville's development as a life sciences center. This HHS presence includes the headquarters and major labs of the Food and Drug Administration (FDA). Further, in addition to Rockville's proximity to the main campus of National Institutes of Health (NIH) in Bethesda, there has been a rapidly growing presence of NIH offices and labs in Rockville itself. Rockville's attractiveness has also included non-profit research and medical organizations such as the U.S. Pharmacopoeia.

This environment has also attracted a growing cadre of bioscience companies to Rockville, some of which originally formed to provide services to NIH and FDA, but which increasingly have developed as commercially oriented product and services companies. Rockville's most famous bioscience company is Celera Genomics, which pioneered the mapping of the human genome. Other notable Rockville bioscience firms include Shire Labs, Otsuka Pharmaceuticals, McKesson Bioservices, Nabi, BIOCON and Quintiles. Many other important bioscience companies have Rockville addresses, but actually lie just outside the City limits. These include Human Genome Sciences and BioReliance. Rockville also has many information technology and communications firms, including Westat, Aspen Systems, OTG Software (now part of Legato Systems) and BAE Systems.

When examining the data regarding Rockville, Montgomery County and Maryland, one is unfortunately confronted by a myriad of shortcomings regarding timing, compatibility and reliability of data. The most notable of these shortcomings are: 1) lack

of availability of 2000 Census data at this time; 2) changing industry classification system from old SIC (Standard Industrial Code) to new NAICS (North America Industry Classification System) codes; and 3) consequent necessity of using for Rockville the Dunn and Bradstreet (D & B) database, which is somewhat less reliable and uses zip code-based location information, which provides only a rough approximation of Rockville. While the D & B data are somewhat less reliable and not compatible with the NAICS-, census-based data, the general results of the two sources appear to be consistent enough as they relate to the County's strengths to provide confidence in using them.

TABLE 1
ROCKVILLE PRIVATE SECTOR HIGH TECH
EMPLOYMENT PATTERNS
AND LOCATION QUOTIENTS (LQs)

High Tech Sector	2003 Empl.	1998 – 2003 % Change	2003 LQs – Rockville Versus U. S.	MD.	M. C.
Bio/pharm. Mfg.	279	- 9%	.54	.58	.93
Info. Tech.	7,810	4%	2.80	1.91	.99
H. T. Research	6,936	71%	4.50	2.54	1.80
Total High Tech	15,545	29%	2.20	1.84	1.21

Source: Dunn & Bradstreet; Jacob France Institute, University of Baltimore; uses SIC industry codes

Using the D & B database, Rockville had 15,545 private sector high tech employees in 2003, comprised primarily of information technology services and high tech research (including biotech)(see Table 1). From 1998 to 2003, there was a 29 percent overall increase in high tech employment. However, the trend was not one of steady upward growth. After the economic bubble of the late 1990s burst in 2000, high tech employment nationally and locally was adversely affected. A recent report by Montgomery County Department of Park and Planning, "Economic Forces that Shape Montgomery County" (March, 2004) indicates that County-wide high tech employment continued to experience reductions through mid-2003.

A useful way to determine the strength of a locality or region in a particular industry sector is to use location quotients (LQs), which measure the percent of the labor force in one area – in this case, Rockville – compared to the labor force concentration in other areas--the United States as a whole, Maryland and Montgomery County. An LQ of 1.0 indicates a similar concentration, while a LQ greater than 1.0 indicates a greater concentration and an LQ of less than 1.0 indicates a weaker concentration. The LQ data (Table 1) indicate that Rockville has more than double the concentration of high tech

employment than in the nation, somewhat less than double the concentration than in Maryland and 20 percent higher than in the County as a whole. Rockville's strength is particularly notable in high tech research. In information technology services, Rockville's employment concentration is equal to that of the County and almost doubles that of the State.

TABLE 2
MONTGOMERY COUNTY HIGH PRIVATE SECTOR
HIGH TECH EMPLOYMENT
LOCATION QUOTIENTS (LQs) IN 2001

	Montgomery County LQs Versus	
High Tech Sector	U. S.	Maryland
Pharm/medical mfg.	1.03	.90
Computer/electronic mfg.	1.04	1.16
Software publishing	2.04	2.94
Telecommunications	1.91	1.48
On-line info. services	n.d.	n.d.
Data processing services	1.48	1.59
Engineering services	3.06	1.37
Testing laboratories	2.73	2.10
Computer systems design	5.13	2.22
Environmental services	3.01	1.38
Other sci/technical services	5.50	2.48
Scientific R & D services	6.88	2.06

Source: U.S. Census, County Business Patterns (NAICS); Jacob France Institute, University of Baltimore.
"n.d." indicates LQ not determined because of data confidentiality.

It is worth noting that the County's position as a high tech leader is confirmed using the LQ analysis with the more detailed NAICS data for 2001 (Table 2). Other than in high tech manufacturing sectors, the County's concentration in high tech sectors is generally 50 percent to 100 percent higher than that of the State and even greater when compared to the nation as a whole.

The results of the data analysis (Tables 1 and 2) confirm the common perception that Rockville and the County possess similar strengths in biotech R & D and information technology. Having said this, it is important to make some distinctions in terms of current and future high tech economic development. The County possesses considerable strengths in biotechnology. The County has reached a point where it has an industry base and related managerial expertise that is large enough to generate new companies. County biotech firms have also been successful in attracting investment from some high profile

venture capital funds, notably Health Care Ventures (New Jersey) and Oxford Biosciences (Boston). NIH itself has provided the principal base for the County's biotech development. With approximately 17,000 full-time equivalent personnel in the County, this impact should not be surprising. A study sponsored by TEDCO, "Founders of Maryland Bioscience and Medical Instrument Companies" (August, 2002), presented findings that over 50 of the founders of the State's bioscience companies spent some time at NIH. Many of these located in the County. The magnet that NIH represents for attracting top tier research talent from all over the world has given the region a tremendous human capital base from which new companies are formed. In addition, NIH's technology base has been a source of new intellectual property from which new companies are formed and develop. The same TEDCO study showed that as of 2000 there were 120 active licenses for NIH technology in the State, many of which were for Montgomery County firms. Finally, County firms actively utilize the Small Business Innovation Research (SBIR) and Cooperative Research and Development Act (CRADA) research support mechanisms from NIH as a means of bolstering their technology portfolios. In addition to NIH, the continued development of the University of Maryland Biotech Institute's Center for Advanced Research in Biotechnology (CARB) and the Johns Hopkins campus, both at nearby Shady Grove, offer the potential to tap their biotech strengths in the future for the benefit of the County's economic development.

This federal driver, along with the growing maturity of the biotech industry, will assure the County of a steady flow of biotech companies in the future. The benefits of this growth should accrue to Rockville as well as the rest of the County, especially further up the I-270 corridor. The bulk of the County's future lab-based biotech development will take place up-county. This process is already underway. Even with the very robust generation of new biotech companies from the MTDC incubator next door to Rockville, MTDC graduates are generally moving to lab space in Gaithersburg and beyond, where there is more lab space available and still more is being developed. Rockville's future may well include the ability to attract and retain lab-based biotech, if older warehouse areas around Gude Drive and Southlawn Lane are planned and redeveloped for this purpose. However, with its more mature economic core and higher cost of land, much of Rockville's land use will be more appropriately directed toward more intensive use as Class A office space rather than lower density R & D space.

The other major technology strength in the County lies in the area of telecommunications, particularly satellite. This derives from the long-standing importance of Hughes Network Systems and COMSAT (now part of Lockheed Martin) along with second generation companies such as Acterna and Visual Networks. Most of these firms have been centered in the Germantown area, where growth is likely to remain.

In many areas of information technology—software development, computer systems design and integration, data processing services and internet applications – neither the County nor Rockville have had any notable leadership positions, although both have significant numbers of IT services firms. Apart from a few exceptions in innovative software firms, such as Manugistics, OTG/Legato Systems and Sage Software/Intersolv, many more of the leading edge technology firms have gravitated

toward Northern Virginia. A homeland security boomlet appears to be coalescing around the National Security Agency (NSA) in Laurel.

The one information technology area in which both Rockville and the County have great strength is in bioinformatics, which is defined by NIH as the application of computational tools toward biological, medical, behavioral or health data. The triumph of Celera in mapping the human genome represented a watershed in the importance of the use of software-based solutions in the drug discovery process. Companies such as Human Genome Sciences and Gene Logic are leading players nationally in using sophisticated modeling and high powered computer throughput technologies to better select molecular targets for drug discovery. Many smaller companies have also emerged in this sector, including Iomai, InforMax and Viaken. This software-based technology has become one of the key elements that will drive the biotech and pharmaceutical industries in the future. The County has an excellent opportunity to continue to play a leadership role because of its strengths. And Rockville, also, is well positioned to be a leader here, both because of its existing strengths and because the software technology can be developed in an office setting.

Conclusions

Two basic conclusions can be drawn about market demand for a high tech incubator in Rockville. First, the size and strength of Rockville's overall high tech industry (both within the City limits and the immediate surrounding area) indicates that the industry base can support a high tech incubator. Second, based upon existing strengths and the capacity to accommodate growth, Rockville is best positioned to focus its efforts on bioinformatics.

Having reached these conclusions, however, does not settle the issues of adequacy of market demand or, given sufficient demand, the actual focus of a Rockville incubator. To properly gauge whether the market will support a Rockville incubator, one must also consider other existing and planned incubators in the region, and whether a Rockville incubator is warranted as part of that mix. This issue will be considered in the next section. In terms of a Rockville incubator's focus, it is important to examine not only existing strengths, but also opportunities for future growth in the economy. This issue will be addressed later in this report.

REGIONAL INCUBATOR ENVIRONMENT

In evaluating the adequacy of the market for a Rockville incubator, it is important to examine the regional incubator environment, including the region at large and Montgomery County in particular, to determine whether the size of the industry base is adequate to sustain an added incubator with high quality client companies.

Maryland is one of only a few states with an aggressive business incubator program that promotes and facilitates the development of business incubators throughout

the State. Leading this effort is the Maryland Technology Development Corporation (TEDCO). TEDCO provides matching funds for jurisdictions to conduct incubator feasibility studies and business plans, and also matching funds for the development and construction of new incubator facilities. TEDCO also has a small grant program for supporting best practice implementation at publicly supported incubators. This coming fiscal year, TEDCO will have additional funds to support incubator operations. In addition, TEDCO has helped establish and financially support the Maryland Business Incubator Association (MBIA), which enables managers of member incubators to share information about best practices. Further support has been provided by the Maryland Department of Business and Economic Development (DBED) and the State Legislature for supplemental appropriations for incubator construction on a case by case basis.

There are currently twelve business incubators in Maryland. Three are located in Baltimore City; two are in Prince Georges County; and there is one incubator each in Montgomery, Baltimore, Anne Arundel, Howard, Harford, Charles and Washington Counties. In addition to its existing incubator at SGLSC, Montgomery County will soon open the new Silver Spring Innovation Center (SSIC). Frederick County is planning the implementation of its first incubator at Hood College, and Allegheny County has just initiated an incubator feasibility study. Most Maryland incubators are technology-focused and address the needs of technology entrepreneurship in their respective communities. Most of the incubators are broadly information technology oriented. Only one incubator is solely biotech; three combine biotech and IT; five are exclusively IT; and one has a technical manufacturing focus. Anne Arundel's Chesapeake Innovation Center (CIC), which opened last year, has two distinctions. It is the first incubator in the State (and the nation) to focus on the homeland security tech sector. And CIC is the first incubator in the State to explicitly focus not only on cultivating locally grown companies, but also on attracting security technology businesses from a nationwide base.

At this time the markets for Maryland incubators are generally quite distinct from each other, because the incubators tend to be separated into geographically distinct economic submarkets. Discussions with MBIA incubator managers confirm this situation, since there has been little competition for applicants even among incubators in adjacent jurisdictions. Competition could, however, increase in the future as some jurisdictions seek to have multiple incubators. The larger issue is whether the high tech base of an area is sufficient to sustain added incubators. This issue has been raised in Baltimore, where the recently opened ETC@Johns Hopkins Eastern High incubator has experienced difficulty in attracting qualified applicants. The same issue may appropriately be raised with respect to a Rockville incubator because of its proximity to MTDC.

There are two parts to the incubator demand issue. The first is a macro-level issue of whether the overall industry base can sustain an additional incubator in that jurisdiction. The second part of the issue is whether there is a market niche or other factors that would allow the planned incubator to serve markets that are not currently being served.

TABLE 3
RATIO OF PRIVATE SECTOR HIGH TECH EMPLOYMENT TO INCUBATOR SPACE FOR LARGEST JURISDICTIONS, 2004

Jurisdiction	High Tech Employment	Incubator Space (s.f.)	H.T. Employment per 10K s.f. space
Anne Arundel County	20,094	20,000	10,050
Baltimore City	9,975	75,000	1,330
Baltimore County	20,712	30,000	6,904
Howard County	14,448	18,000	8,026
Montgomery County	57,303	80,000	7,163
Prince Georges County	21,900	50,000	4,380

Source: Employment, 2002 U.S. Bureau of Labor Statistics; Incubator Space, 2004 MBIA
Note: Montgomery County space includes Silver Spring incubator, which is set to open shortly.

There is no objective measure of the optimal amount of incubator space for a given area, or some clear range, bracketed by bright lines, one end of which would trigger an automatic justification for an added incubator while the other end of the range would signify that the area was satiated and preclude adding any more space. Nonetheless, it would certainly be useful to know what range exists in the State and where the County fits within that range. Using a ratio of private sector high tech employment in a given jurisdiction to that region's available incubator space (Table 3), one can examine the range of concentrations of space relative to the high tech population for each Maryland jurisdiction. At the low end lies Baltimore City with its three incubators and relatively small high tech base. Its ratio is perhaps an indicator of its having a superabundance of space. At the upper end lies Howard County. Montgomery County falls in the upper range, and if one did not count the new SSIC, which is not quite open, the County's ratio would approach that of Howard.

Evaluating demand for incubator space should certainly take into account factors other than an absolute ratio. Some other important demand factors would include whether a potential incubator would:

- Be proximate to a special facility, such as a major research university or federal lab, which would be particularly beneficial to incubator firms or from which new firms would spin out;

- Meet the needs of distinct geographic submarkets within a jurisdiction, where the submarkets would not likely compete with each other for incubator applicants;

- Focus the incubator on a particular industry niche that is not being addressed by the neighboring incubators; or

- Expand the market from which one draws incubator firms from the immediate geographic vicinity to a much broader area, including national or international outreach.

Evaluating the demand for a Rockville incubator should take these considerations into account. The ratio data indicate that the County in general does not currently have an excess of incubator space. The special circumstance here is that the County's existing incubator, MTDC, lies just outside the Rockville city limits. From a geographic standpoint, there would certainly be a market overlap. The issues, therefore, are whether there is sufficient market demand in the mid-County area to support two incubators and whether there are other factors noted above that would also warrant a Rockville incubator.

Whether the mid-County market is large enough to sustain two similar incubators is difficult to assess. One positive indicator is that a significant portion of the County's high tech industry is located in the I-270 Corridor from Bethesda to Germantown. The ability to sustain a second incubator is supported by the fact that MTDC has been full since the end of 1999 except during brief periods of transition when graduates are moving out and new firms are moving in. Demand has far exceeded supply for both the biotech wet lab space and the IT-related space. The ratio of applicants to acceptance is almost 4 to 1. This has allowed great selectivity of applicants, which, in turn, has led to a very high quality of accepted firms.

While the Silver Spring market is generally distinct from that of the I-270 Corridor and is developing its own identity around broadcast and film media, it is worth noting that SSIC appears to be ready to make a successful start. As of mid-May, 75 percent of SSIC space had already been pre-leased by the County. This is an indication of strong demand in the Silver Spring area. Because SSIC will accept technical services firms as well as firms with innovative technologies, it will complement MTDC and enable the County to serve companies that MTDC cannot accommodate.

Although the mid-County market along I-270 is strong and can certainly accommodate a second incubator at this time, it is important to consider that the County plans to open another incubator in Germantown. Similar to MTDC in having wet lab and IT space, this incubator will be part of a new R & D park adjacent to Montgomery College's Germantown campus. This incubator and R & D park are designed to anchor the County's up-county high tech economic development. As such, assuming a Rockville incubator, there will be three incubators in the I-270 Corridor. That would certainly raise a cautionary flag, if the three incubators were all similar. A particular concern would be in having all three with biotech wet lab space.

Conclusion

In terms of demand within the regional incubator environment, a Rockville incubator is warranted based upon overall demand, but should preferably be focused on a

particular industry niche not currently being addressed and/or draw on a market base that extends beyond the local area.

II. INDUSTRY FOCUS

The foregoing analysis demonstrates that Rockville and the County possess a strong overall base in biotechnology, information technology and telecommunications, with Rockville possessing particular strength and opportunity for growth in the field of bioinformatics. The analysis also demonstrates that Rockville, in relation to other incubator markets in the region, and particularly to nearby MTDC, can justify having an incubator based upon the size of the overall market, but would benefit from addressing a unique industry niche or drawing its firms from a broader geographic market. Based on these findings, Consultants next chose to focus on market gaps that a Rockville incubator could address, keeping in mind that bioinformatics was the cardinal item on the list.

INITIAL SECTORS CONSIDERED

Consultants considered many possible industry and market areas for a Rockville incubator. It is worth noting first those that were deemed unsuitable at this time:

- Biotech Bench Research – As discussed above, this focus would clearly support current and future industry growth in the County; however, Rockville is already well-served for its wet lab needs by the current MTDC, and, with another incubator with wet labs planned for Germantown, there is little justification for another wet lab-based incubator here.

- Homeland Security – This sector is certainly one that is of intense interest locally and nationally and would attract a lot of attention; however, Rockville and the County have no particular industry or federal lab base on which to easily build a vibrant sector. In addition, Anne Arundel County has already successfully launched CIC, its homeland security incubator. One security area that would tie in with bioinformatics would be emergency management related to the identification, monitoring and containment of toxins or communicable diseases.

- Nanotechnology – By common recognition, this is a technology of great promise. Nanotechnology spans the physical and biological sciences and has likely applications in many fields of technology. A potential drawback for a Rockville nanotech incubator is that nanotech tends to be manufacturing oriented, thereby reducing the likelihood that such firms would stay in Rockville after graduation. Both the County DED and State DBED are studying the potential for crafting economic development strategies around nanotechnology. Until those strategies are further along, focusing the Rockville incubator on one or more aspects of this broad field should be considered premature.

- Federal Contracting—This is an area that has been a traditional strength in the entire D.C. metropolitan area because of the presence of so many federal agencies. This emphasis is likely to persist because of the continuing efforts to outsource government operations. However, federal contracting per se offers little of genuine distinction, since it cuts across so many fields. Rather than have an incubator specialize in federal contracting, it would be better to have the incubator offer expert advice in this area as one of its services.

LIFE SCIENCES AND HEALTH CARE

As discussed above, bioinformatics emerged from the analysis of current local industry strengths as the one in which Rockville both currently excels and also offers the potential for capturing future growth. Existing strengths in this area lie in the region's industry base, including leaders like Celera, HGS and Gene Logic, and smaller firms such as Iomai, Informax and Viaken. This strength also lies in the federal sector from NIH and FDA and in the University sector at the Center for Advanced Research in Biotechnology (CARB) with its protein engineering capabilities. In addition to the Human Genome Project, NIH has just launched a new set of initiatives called "The NIH Roadmap." Two major parts of this roadmap are:

- "Bioinformatics and Computational Biology" initiative is based on the notion that "biology is changing fast into a science of information management." The objective is to create a national information superhighway with a software engineering system to promote the sharing of vast amounts of research information, thereby speeding up the research process.

- "Re-Engineering the Clinical Research Enterprise" initiative is intended to speed up the process of conducting clinical trials. Part of this initiative requires the development of better ways of organizing and reporting clinical research information, improvement of the analysis of clinical outcomes, and improvement in reporting adverse events and maintaining human subjects protection. In March of this year, the National Cancer Institute (NCI) announced an initiative to create the Cancer Biomedical Informatics Grid for sharing clinical data across cancer centers.

In addition to NIH, FDA is also actively promoting efficiencies in the clinical trial process and drug safety. Both NIH and FDA utilize the CRADA and SBIR mechanisms to encourage the development of technologies and products to further their objectives. Some of their current published priorities include:

- NIH/National Center for Research Resources—Development of bioinformatics technology, including collection, organization and storage of data; compatibility with multiple databases; protection of confidential information.

- NIH/National Health Informatics Infrastructure—E-clinical research initiative, including streamlining performance, increasing efficiency, coordinating patient recruitment and record keeping, and improving regulatory compliance.

- NIH/National Library of Medicine—Medical informatics, including software for integrating and extracting information from large patient databases; systems to organize and synthesize data on specific health problem areas.

- FDA—Clinical drug trial simulation; software for predicting and characterizing toxicity of pharmaceuticals; software to facilitate the processing and retrieval of information; systems for gathering real-time data on physician prescriptions; methods for timely surveillance of newly approved drug products.

As some of the funding interests for FDA and the National Library of Medicine noted above indicate, and as the NIH definition noted above confirms, bioinformatics is not limited to software and systems related to basic science and clinical research, but also relates to areas of health care – for example, records management, tracking patient data, prescription ordering, processing and evaluating insurance claims, tracking diseases and tracking drug usage. The importance of these issues cannot be overestimated. The cost of health care has risen dramatically in the U. S. and is projected to continue on a sharp upward trajectory, taking an increasingly large bite out of government, corporate and individual accounts. National health expenditures (NHE) are projected to grow from $1.4 billion in 2001 to $3.1 billion in 2012. In the same period, NHE per capita is projected to grow from $5,039 to $9,972, and NHE as a percent of gross domestic product (GDP) is projected to grow from 14.1 percent to 17.7 percent.

The importance of information management in the improvement of health care was highlighted last week by the creation of a new position in HHS, the Health Information Technology Coordinator. In announcing this new position, HHS Secretary Thompson stated, "Health information technology has the potential to greatly improve health care even as it yields huge savings."

Pressure to improve the efficiency and productivity of the health system, while at the same time improve the quality of care, involves every element of the health system:

- Health Services Providers – hospitals, nursing and assisted care facilities, federal hospitals and clinics, university health systems and individual doctors.
- Health Insurers – government and private.
- Third Party Payers—private and government employers.
- Patients—insured and uninsured.

There is intense business activity to respond to this growing market in order to find ways to improve the health care system through greater efficiencies and quality of care. Many companies in our region are responding with new software-based technologies to address these market demands. Many of these are young firms, some of which are in incubators. Some examples are:

- Dentisoft Technologies (Bethesda)—dental practice management software and services through on-line ASP (application service provider) networks;
- DrFirst (Rockville)—software for PDA-based prescription ordering;
- Cereplex (Gaithersburg)—software and services for tracking antibiotic use in hospitals and tracking hospital infections;
- TFCCI (Rockville, MDTC incubator)—web-based software platform for pharmaceutical drug safety and adverse event surveillance;
- VISICU (Baltimore, ETC incubator)—critical care tracking via telemedicine;
- Salar (Baltimore, ETC incubator)—PDA-based medical administration software, including clinical care tracking and record billing.

In addition, many firms are now offering information management services that provide bioinformatics technologies to health care providers and to biotech and pharmaceutical companies. Several prominent local examples are:

- Westat (Rockville), with 1,800 employees performs a wide array of research services, largely for the federal government, including clinical trials, epidemiological research, health services outcome research (e.g., medical expenditures), and aging and long-term care studies;

- Aspen Systems (Rockville) provides health information dissemination services for the federal government, including the "clinicaltrials.gov" web site for NCI linking patients to clinical trials. Aspen Systems also provides primary health care services as an operator of health clinics for the federal government;

- CTIS (Rockville) develops and operates enterprise-wide clinical informatics systems for government and private organizations that include data warehousing, data mining and analysis and reporting of large data sets of clinical trial information;

- RRD International (Rockville), founded by former BRI/Quintiles executives, provides drug and medical device consulting services for clinical trials design and management; and

- Health Pathways (Gaithersburg) provides records management solutions for on-line submission of FDA-required data and Health Insurance Portability and Accountability Act (HIPAA) compliance.

In addition to these local companies, it is worth noting that IBM, which has a large national and local life sciences practice, has just added a local group to provide services to the health care industry. Other national companies such as Oracle and Siemens are active in the biomedical and health care informatics field as well.

Both the research-oriented bioinformatics market and the health care systems market provide very robust and deep markets from which to draw potential companies to a Rockville incubator, a market that is likely to grow for the foreseeable future.

There is an added advantage of having a Rockville incubator that focuses not only on research informatics, but also on health care information technology. The incubator could tap into local organizations that would have a vital interest in the technologies and products being developed by the incubator firms. These organizations could be partners with the incubator, providing advice about what is needed and perhaps serving as beta test sites for the products developed by incubator firms. Some of these organizations might also choose to become sponsors of the incubator, providing financial support and guidance for the incubator. Potential partners and sponsors might include:

- Adventist Health Care, the County's second largest employer with many hospitals and other health care facilities;
- Johns Hopkins and University of Maryland health systems in Baltimore with teaching hospitals that do extensive clinical research as well as patient care;
- NIH, with its new "roadmap" in trying to facilitate the translation of research into new drugs and vaccines;
- FDA, with its interest in facilitating the review of new drug candidates and in monitoring the health impact of new drugs;
- HHS Health Information Technology Coordinator, with his broad interest in health care information management;
- MAMSI, the health insurer with an interest in reducing its administrative costs.

An incubator that includes both life sciences research and health care foci would also offer the potential for partnerships with higher education institutions with particular expertise in this field. There are two notable possibilities in the region:

- Johns Hopkins Bloomberg School of Public Health, whose Biostatistics and Epidemiology departments offer expertise in the areas of risk analysis, survival analysis, clinical trial research modeling and research, environmental statistics and disease surveillance. The Hopkins School of Public Health has a long history of offering its Master of Public Health program in Montgomery County to HHS Public Health Service employees; and

- University of Maryland School of Nursing is the first nursing school in the nation to offer a nursing informatics program and sponsors the Summer Institute in Nursing Informatics. The Nursing School has been offering courses at the University System campus at Shady Grove and is exploring offering its Nursing Informatics program there as well.

One final benefit presented by a life sciences and health care incubator in Rockville is the opportunity to take advantage of the presence of the many medical and health non-profit associations in the County. A recent study of the Park and Planning Department indicates that almost one half (144) of the many associations in the County

are in the medical and health field. Many of these associations are involved in promoting the best research and health care for their membership fields and would have expertise and contacts of benefit to incubator firms. Additionally, when new medical and health associations themselves are established, the incubator might also be an appropriate location for them to initially grow.

Conclusion

A **Rockville Life Sciences and Health Care Incubator** should be established with bioinformatics as its unifying theme. Such an incubator would:

- Build upon Rockville's and the County's existing strengths in biotechnology;
- Tap into a market of great demand with long-term growth potential;
- Provide a unique focus not being addressed by other incubators;
- Add a new dimension to the County's reputation as a biotech hub;
- Tap into other important local and regional resources, including hospitals, federal agencies, university health systems, health insurers and medical and health associations.

INTERNATIONAL

While life science and health care emerged as the preeminent focus of the Rockville incubator, another focus that appeared during the Consultants investigation of market opportunities was found to have great merit. That focus was international technology businesses. Because of its size, vibrancy, diversification and technology leadership, the U.S. market is attractive to international companies. To capture a share of the U.S. market, large established foreign companies either partner with American companies or establish their own U. S. operations. Small and medium size foreign companies, due to cost considerations, tend to adopt an indirect market entry strategy by attending trade shows or participating in government-sponsored trade missions. These firms then follow up on any leads upon their return to their countries. Conversations with consultants specializing in assisting such companies indicate that most of these companies have found that the indirect approach does not meet their requirements for gaining access to the U.S. market. These firms have come to realize that the best way to capture a share of the U.S. market is to establish a physical presence in the U.S. and test their chances of success with a small office before committing to a larger presence.

It is difficult to assess the market demand for an incubator with a focus on small and medium size foreign companies. It is clear that with the implementation of international trade accords, the environment for foreign businesses to pursue the lucrative U.S. market has improved greatly. But gauging the pace of that development, especially in light of uncertainties in monetary policy and the political/war climate, is difficult. Consultants pursued a more anecdotal approach toward gauging demand for an international incubator in Rockville. First, Consultants discussed the concept of the international incubator with a wide range of international consultants and organizations

that are actively working with international companies. And secondly, Consultants analyzed the operations and performance of a few international incubators in neighboring jurisdictions, as well as the experience of MTDC in dealing with international companies. In performing this research, Consultants used the following model of the type of foreign company that would be appropriate for a Rockville incubator:

- Less than 500 employees and with annual revenue less than $50 million(US);
- Technology-based company already marketing innovative products or technologies in the international marketplace;
- Sales are growing;
- In operation for more than three years and profitable;
- U.S. market has yet to be tapped.

Consultants received highly favorable comments from consultants and organizations that have direct experience in bringing foreign companies to the U.S. The highlights of their comments were:

Global Business Consulting (www.askgbc.com). GBC has been offering professional services to French life sciences companies (biotechnology, contract research organizations, medical equipment and supplies) ready to enter the U.S. market. GBC stated that many of these companies that are considering a direct entry strategy by means of a branch or a subsidiary face major hurdles including high cost of real estate in major technology regions, and unfamiliarity with U.S. business practices and regulations. The opportunity to start their U.S. operations in an international incubator in Montgomery County would be very attractive to French companies.

Marie Landel & Assoc. (www.marielandel.com), Boston, MA. One of the active practices of this firm is to help European health care and life sciences companies set up their U.S. operations. While the firm is located in Boston (European companies still see Boston as the key entry point to the U.S. market), it also helps its clients locate in the Mid-Atlantic region. The firm would welcome the establishment of a Rockville international incubator and would refer clients to the incubator.

Maryland /Israel Development Center. The Center is a non-profit organization promoting trade, joint ventures and investment between Maryland and Israeli businesses and research institutions. The organization recently introduced the "Market Reach America" program to help small and medium sized Israeli companies penetrate the U.S. market. The program provides Israeli entrepreneurs an instant business infrastructure and network in the U.S. by matching them with American business experts as consultants and advisors. The Center's Executive Director sees a Rockville international incubator as a logical next step in helping his program's graduates establish a small office to start their market entry.

Australian Trade Commission. The biotech and advanced technology specialists of the Commission visited MTDC to discuss potential cooperation in helping Australian companies establish branch offices to market products and services to the U.S.

Government as a result of the U.S.-Australia Bilateral Free Trade Agreement. To tap into this new market, these companies have indicated their preferences to establish a bridgehead operation in a facility like the proposed Rockville incubator.

Delta Tech International- Seoul Korea. This organization with offices in Seoul, South Korea and Northern Virginia specializes in organizing study tours of the U.S. for Korean technology companies as well as helping them locate their subsidiaries in the U.S. The manager of the Seoul operations in a recent visit to MTDC with the Korean Institute of Industrial technology (KITECH) welcomed the opportunity of cooperating with a Rockville international incubator.

Greater Washington Initiative. GWI is the marketing operation of the Washington Board of Trade. Its mission is to market the Greater Washington area to national and international companies. It often conducts business briefings to introduce the area to international companies planning to establish a presence in this market. GWI has often encouraged its prospects to consider locating their operations in many of the region's incubators, including MTDC. GWI indicated its support for the establishment of a Rockville international incubator and would add it to the inventory of the region's location incentives.

MTDC's experience also indicates a strong demand for space from international technology companies. Although MTDC is not marketed as an international incubator, nor does it tailor its services to the needs of foreign companies, it is currently the home of three foreign companies –from Israel, France and Korea. It is noteworthy that the French and Korean companies located at MTDC as a result of direct contacts made by Montgomery County Department of Economic Development (DED) with the companies' principals during trade missions to France and Korea. Within the last thirty days MTDC has received visits from one Israeli IT company, one U.K. security technology company and one German biotech company to assess MTDC as a potential location for their entry into the U.S. market.

There are currently two incubators in this region with either a full or partial international focus, both of which are located in Northern Virginia. This situation reflects both the larger marketing budgets in Northern Virginia, particularly Fairfax County, as well as the presence of Dulles Airport, which is a major international gateway to the U.S.

Fairfax County's Bio-Accelerator. Although the primary mission of the Bio-Accelerator is to facilitate the development and growth of regional bioscience companies, Fairfax County has also used the incubator as a tool to attract foreign companies. The County has conducted business plan competitions in Europe, awarding the winners free rent and services for one year to locate at the Bio-Accelerator. The Bio-Accelerator, which has no wet labs, is home to eleven life sciences-related firms, including three from Europe. The Bio-Accelerator provides customized business assistance services to these foreign-owned companies to help them expand into the U.S. market. Fairfax Economic Development Authority (EDA) estimates that the assistance package to each foreign-

owned company in the incubator is valued at $50,000. According to the Bio-Accelerator operator, the business plan competition has resulted not only in attracting companies to the incubator, but also in helping Fairfax County identify numerous active prospects and succeeded in placing some of them elsewhere in the County. The true measure of success of the international aspect of the Bio-Accelerator will be the decision of the international tenants after "graduation" to stay and expand in Fairfax County after their subsidized tenancy. While the international program of the Bio-Accelerator is too young to assess this measure of success, it is already clear that the Bio-Accelerator has succeeded in filling its dedicated international space and that the program has greatly complemented Fairfax County's international marketing effort.

Arlington County's Incubator AMERICA. This is an international business incubator that has the mission of assisting foreign companies wishing to locate and expand their businesses in the U.S. Incubator AMERICA is a partnership between Arlington Economic Development (AED), Mason Enterprise Center (MEC) of George Mason University, and Source Office Suites. Space and office operation amenities for Incubator AMERICA are provided by Source Office Suites as part of its shared executive office suite business. As a result of this arrangement the space is rather expensive for an incubator. Offices ranging from 130 to 400 square feet command a monthly rental rate of $1400. The incubator does not have programming services on site. However tenants can tap into business support services provided by MEC. Recently seven Romanian IT companies joined Incubator AMERICA under the TIGREUS--Technological Incubator for the Growth of Romanian Enterprises in the US - a project financed by the U.S. Agency for International Development. While some see Incubator AMERICA as more of a shared executive office business rather than a true incubator because of lack of programming services on site, the incubator has helped Arlington County reach out to foreign-owned businesses and to competitively position the County in the international marketplace.

One new resource for internationally oriented incubators that has recently been developed comes from the Howard County Economic Development Authority in partnership with the Johns Hopkins Applied Physics Lab. Their recently announced initiative is called Incunet, and its mission is to be the catalyst for the global development of incubator companies by linking incubators in various countries. Incunet seeks to:

- Facilitate the transfer of technology from federal labs, universities and large private corporations to member incubator companies;
- Allow incubator companies to have a marketing presence in a foreign country by establishing a subsidiary or sales office in a member incubator's offices;
- Help member incubator companies gain access to foreign government R & D and other grants;
- Assist in finding and establishing international partnerships and business alliances; and
- Assist in locating and accessing international funding sources.

Incunet is just getting started, but it offers the possibility of providing a Rockville incubator – whether it is or is not an "international" incubator – with an excellent network to identify firms to locate in our incubator as well as to provide access for our incubator firms to gain information and access to foreign resources and markets.

Consultants conclude that there is sufficient demand from small and medium sized businesses in foreign countries to sustain an international incubator in Rockville. The soft evidence indicates that, particularly in European and Asian nations, there is a high level of interest by firms and their government sponsors in having a U.S. presence, and that a Rockville incubator would provide an important attraction for them as a place to locate. Consultants believe that the target population of international firms should be limited to technology firms and, more specifically, to technology firms who are committed to having a substantial presence in the U.S. While it is entirely reasonable that these firms would want to have an initial presence that would explore the market potential for their products, firms should be selected based on their intent to establish a U.S. headquarters operation or develop R & D facilities here. The benefits of an international incubator for Rockville are substantial, not only for Rockville, but also for the County and the State. An international incubator would:

- Provide a unique focus among County and State incubators;
- Complement the increasingly international demographics of both Rockville and the County;
- Provide a new weapon in the County's and State's economic development arsenals for attracting foreign firms;
- Expand the market base from which firms would be drawn to the incubator beyond the local area.

The attractiveness of an international incubator is that it represents a new model for incubators in the County and the State. It would, however, be harder to implement. There would be new and more specialized services to offer, although the resources are clearly available in the region. More importantly, the marketing of the incubator would be considerably more expensive and rely on County DED and State DBED working actively to attract firms, including special efforts such as the international business competition used by the Fairfax Bio-Accelerator. There would certainly be a longer lead time required to market the incubator in order to fill the space.

Conclusion

Because of the strong local base and the opportunity to address a growing market, Rockville should establish a **Life Sciences and Health Care Incubator.** In light of the soft evidence of demand and long lead time required to scale up an international incubator, the international focus should be integrated into the life sciences and health care focus. International recruitment will actually expand the market from which the incubator will draw its clientele. By relying primarily on local firms first, the process of international recruitment can be phased in gradually. In addition, the same international marketing effort that is used for the life sciences and health care incubator can also be

used for MTDC, which has the capacity to take R & D-based biotech companies and other advanced technology firms. As another economy of scale, both incubators can utilize the same specialized expertise needed to assist foreign firms to acclimate to the U.S. legal, accounting and regulatory system and get to know U.S. markets. Finally, Consultants recommend that the Life Sciences and Health Care Incubator space be open to young medical and health care associations that may be looking for a stable and nurturing place to grow.

III. ECONOMIC BENEFITS

The most fundamental reason for having a high tech incubator in one's community is that it increases the economic benefit to the community. The argument is straightforward. High tech jobs pay better than average jobs. Those better paying jobs buy more goods and services in the community, thereby adding demand for other jobs, and they pay more taxes, thereby enabling communities to improve the level of their public services. In Maryland in 2000, the average weekly wages for nonagricultural industry was $710, while the average weekly wages in the telecommunications, IT and biotechnology industries were $1,164, $1,211 and $1,118 respectively (Maryland DLLR), over two-thirds greater than nonagricultural wages.

Incubators themselves enhance the longevity of companies and add to the economic base of their communities. While the average firm has only a 25 percent chance of survival after three years in business, the chances of an incubator firm surviving after three years is 75 percent. In addition, incubator firms tend to stay in the communities where they are incubated. A 1997 National Business Incubator Association (NBIA) study found that 84 percent of incubated companies stayed in their communities.

In an effort to better understand the benefits to Maryland of incubators, the Maryland Technology Development Corporation (TEDCO) commissioned a study by RESI consultants in 2001 that evaluated the economic impact of six Maryland incubators from 1998 to 2000. The study found that the average employment of a firm in an incubator rose from 2 to 6 employees, while the average employment of a firm that graduated from an incubator rose from 13 to 38 employees in the same period. In terms of revenues, the study found that current incubator firms generated between $240,000 and $400,000 annually, while incubator graduates generated between $4 million and $7.5 million annually. In terms of overall economic impact, the study found that the incubators generated (using a multiplier that accounted for added impact on the community):

- Between 2,200 and 6,800 jobs;
- Between $184 million and $530 million in gross state product; and
- Between $31 million and $96 million in taxes (federal, state and local).

In order to gauge the impact of an incubator on the Rockville economy, Consultants retained the Jacob France Institute to perform an impact analysis. Estimates

were limited to the impact of "current" incubator companies, i.e., those companies that would be tenants in an incubator. No estimate was made of the potential impact of Rockville incubator graduates, because such an estimate would require projecting out 6-9 years, too far to convey much confidence. Impact effects were calculated on a County-wide basis.

Table 4
Estimated Economic Impact of Proposed High Tech Incubator in Rockville

	Direct Effects		County Economic Activity Supported		
Incubator Size (Sq. ft.)	Output ($ mil.)	Employment (No. jobs)	Output ($ mil.)	Employment (No. jobs)	Employee Comp. ($ mil.)
20,000	8.1	80	13.1	129	7.4

Source: The Jacob France Institute, IMPLAN

The results in Table 4 estimate a significant impact on the Rockville and County economy from simply those companies in an incubator (again, not projecting their even greater impact after graduation). Assuming a 20,000 square foot incubator, there would be an estimated "direct" effect of 80 jobs and $8.1 million in revenues and purchases in the community. Total estimated economic impact – direct effect plus "indirect" and "induced" effects of firms in the community that increase their employment and purchases of goods and services as a result of the incubator expenditures – would add 129 jobs (49 more than the incubator alone) and $13.1 million in total revenues and expenditures.

It is worth noting the success of MTDC in the less than four years since it has opened. MTDC is a 60,000 square-foot facility offering office and wet lab space to start-up biotech and advanced technology companies. Since its inception in 1999, MTDC has served 68 companies, of which 36 are current tenants, and 25 are successful graduates. The remaining were either acquired or merged with established companies. Only three have had to close.

MTDC has been very successful in meeting the County's economic development objectives of retaining local technology entrepreneurship talent, growing technology businesses, generating jobs and attracting private capital:

- More then 80 % of current MTDC firms and graduates are companies founded by local entrepreneurs, using talent and technology from Federal labs and technology companies in the County;
- More 90% of the graduates remain in the County and help strengthen the County's technology community;

- Graduates and current MTDC firms have a combined workforce of more than 700 employees;
- It is estimated that more than $300 million of investment capital has been invested in MTDC companies and graduates.

Conclusion

A Rockville incubator would be a significant economic benefit to Rockville and the County. As demonstrated by the TEDCO study, the IMPLAN analysis of a Rockville facility and the experience of MDTC, there is a real positive impact on retention of firms, job growth and purchases of goods—an impact that markedly increases in benefit as incubator firms graduate and stay in the community.

IV. FIT WITH ECONOMIC DEVELOPMENT OBJECTIVES OF ROCKVILLE AND MONTGOMERY COUNTY

Rockville, Montgomery County and the State share the fundamental objective of having high tech industry serve as the cornerstone of their long-term economic development success. The City, County and State also share the belief that high tech business incubators play a crucial part of their high tech economic development strategy. County DED is so committed to this strategy that it has articulated a vision of having seven incubators in place by 2007. And TEDCO's newly expanded incubator support program is a strong indicator of the State's commitment to incubator development.

The County's "7 in 7" goal is ambitious, especially in such a short period of time. There are four incubators that are currently either built, about to open or firmly affixed in DED's planning sights. In addition to MTDC and SSIC, plans call for a bio/advanced tech incubator as part of the new research park at Montgomery College's Germantown campus and a bio/advanced tech incubator to be located at a retired WSSC landfill site in North Silver Spring. Each of the newer incubators is intended to seed a new node of economic development activity in the County—northwest, east and northeast—and provide for the generation of high tech companies that will drive these new or revitalized markets.

The State and TEDCO have been aggressive in their support for incubator development in all areas of the State—urban, suburban and rural. They have put significant financial backing behind the planning and construction of incubators, with a new added emphasis on supporting best practices in incubator operations. However, as more jurisdictions have incubators, and as larger jurisdictions have multiple incubators, TEDCO will likely be asking at what point the State and various regions will reach saturation. Rationales for added incubators will increasingly need to move beyond basic geographic coverage to a more nuanced examination of demand, the kind of examination provided in this feasibility study.

A key issue, then, is how a Rockville incubator would mesh with the County's and State's incubator development plans. In examining their respective plans and aspirations, Consultants concluded that a Rockville incubator, as conceived, would be a positive addition to the County's and State's programs as well as further the City's goals. For Rockville, a Life Sciences and Health Care Incubator with an international component would offer many benefits:

- Create a unique identity for Rockville that would differentiate it from other areas within the County and the State and give it high visibility;
- Build on Rockville's existing strengths in research oriented bioinformatics, while adding health care informatics and an international focus;
- Generate incubator graduates that would have a likelihood of staying and growing in Rockville;
- Attract and retain high paying jobs;
- Enhance the City's international reputation; and
- Provide an opportunity to bring in as partners major local employers.

For the County, a Life Sciences and Health Care incubator with an international component in Rockville would also offer many benefits:

- Advance DED's incubator strategy of having "7 in 7;"
- Complement, rather than compete with, the County's other planned incubators and their geographic orientation;
- Build on the County's existing strength and reputation in biotech and add a new dimension in health care informatics;
- Strengthen the County's international reputation and add a valuable tool to attract international firms; and
- Add the City as a partner in sharing the costs of incubator development.

For the State, a Rockville Life Sciences and Health Care incubator would offer many parallel benefits:

- Fit with DBED and TEDCO's priority of using incubators as a key driver of high tech economic development;
- Add a new industry niche among the State's incubators;
- Provide further support for the County's role as the high tech driver of the State's economic development;
- Add a valuable asset in DBED's mission to attract international firms to locate in the State.

Conclusion

A Rockville Life Sciences and Health Care Incubator would be an excellent fit with the economic development and incubator strategies of Rockville, the County and the

State. Its unique industry and international focus would complement other incubators, build on existing strengths and enhance the reputation of everyone.

V. FRAMEWORK FOR IMPLEMENTATION

To assist in implementing the Rockville Life Sciences and Health Care Incubator, Consultants examined the various structural and program elements needed to establish the incubator and provide a series of action items for Rockville Economic Development, Inc. (REDI) to take in order to bring the incubator to fruition. These elements include:

- Types of program services and collaborations that would support the incubator's operations and member firms;
- Corporate and management structure best suited for the incubator; and
- Size, location and funding issues.

PROGRAM DEVELOPMENT AND COLLABORATION

Program services are the key benefit that a young company will receive from its residence in the incubator. Most start-up and early stage companies come with only a handful of staff, usually focused on developing the technology of their particular product or service. Many essential business skills that are needed to grow a young company are lacking. Even second stage technology companies that are still operating with limited resources need assistance to access funding support, technology development or commercialization support services to leverage their own resources. The incubator management and staff must provide the necessary services to the entrepreneurs, in some cases directly, in most cases through linkages to outside resources and service providers. Some of these services will be similar to what other incubators provide in the way of general business support; however, added specialized services will be needed for the life sciences/health care and international firms that match their particular needs.

The incubator management team must build a close oversight structure for incubator companies with the aim of propelling companies to realize their growth potential. It is important both to respond to company requests, but also to identify issues and problems that companies themselves may have missed. The services provided will have the following characteristics:

- Focus and coordinate existing resources so that they are readily available, rather than leave them scattered and hard to identify;
- Vet service providers to assure that only high quality providers are used;
- Facilitate the development of new locally available services where none currently exist and where a critical mass warrants such development;
- Tailor services to the needs of each company, rather than having a one-size-fits-all program;

- Closely supervise company progress to assure that growth potential is met.

Most of the needed expertise is available regionally through a wide array of private businesses, higher education institutions and non-profit organizations. In addition, the Rockville incubator can and should take advantage of the networks and services available at the County's existing incubators. These would include the Maryland IP Legal Resource Center (MIPLRC), which is located at MDTC. The relationship with the County's programs can be reciprocal, with the specialized life sciences/health care and international expertise available through the Rockville incubator being made available to MTDC and SSIC firms as well. This would avoid duplication and ensure the most cost effective method of providing services.

General Entrepreneurial Support Services

Professional Services. Entrepreneurs need professional advice regarding all the essential elements for operating their businesses, including legal (corporate, tax, finance and intellectual property), accounting, strategic planning, marketing and sales, human resources (hiring and employee benefits), media relations and insurance. These services will generally be provided on a one-on-one basis through a service agreement between the individual firm and the service provider, or via group sessions, such as incubator seminars.

Networking. In addition, the staff of young firms have much to learn through networking with their peers, either with those in the same market niche or with those at similar stages of development. There are several avenues through which valuable networking experiences can occur:

- Within the incubator, having networking meetings, brown bag lunches and seminars that encourage interaction among each other;
- Utilizing the networking meetings of the Tech Council of Maryland (TCM), including the BioAlliance and CFO Network, to draw on the experience of those in the larger community. One added possibility would be to have the incubator, in conjunction with TCM, consider developing a Health Care Network and an International Network to provide more focused networking opportunities for incubator firms;

Financing. Access to financing is one of the top priorities of early stage high firms. Since these firms, without products on the market, generally do not have access to traditional bank financing, they must look to a variety of other sources for support. Assisting incubator firms in planning for their financing needs, identifying potential sources and making introductions to sources are key services that the incubator management will provide. Sources will include:

- County and State funds for early stage high tech companies;
- Angel and venture capital equity financing;

- Product development and commercialization support from federal SBIR and Advanced Technology Program (ATP) programs and from TEDCO's Maryland Technology Transfer Fund (MTTF) and Federal Laboratory Partnership (FLP) programs;
- Research support, including the federal CRADA program and State MIPS program at the University of Maryland; and
- Strategic partnerships with larger firms, which can offer up-front product development support in return for licensing or distribution rights.

Specialized Life Science/Health Care Services

Because the Rockville Life Sciences and Health Care Incubator is a specially branded incubator, designed to attract firms from particular market niches, it must offer high quality services that fit the needs of its clientele. While most of the services needed by this clientele are similar to those needed by all entrepreneurs, the services must be geared to this clientele. Specialized services would include:

- Knowledge of, and contacts with, the various HHS agencies with CRADA and SBIR programs in research and health care bioinformatics;
- Assistance with federal contracting opportunities in bioinformatics;
- Assistance with licensing or partnership opportunities with large consulting firms that serve the bioscience research and health care industries;
- Contacts with local health care providers for possible partnerships, such as beta testing new products;
- Knowledge of national biomedical research and health care markets;
- Contacts with university resources for specialized technical assistance.

Specialized Services for International Firms

Because international firms that will locate in the incubator will already be established in their native countries, the nature of their service needs will differ greatly from the services needed by local early stage technology firms. International firms will need less in the way of basic entrepreneurial business skills and more in the way of knowledge about U. S. markets and ways of doing business in the U. S. These services will include:

- Advice on the U. S. business culture;
- Knowledge of, and introduction to, U. S. markets, trade associations and networks;
- Assistance in developing partnerships with U. S. firms in the research and health care marketplace;
- Assistance in pursuing federal marketplace opportunities;
- Advice about U. S. legal, accounting and regulatory practices to which international firms must adhere

Collaboration Opportunities

After examining trends in incubator development, including the recent success of the Anne Arundel CIC, Consultants believe that the Rockville Life Sciences and Health Care Incubator and its added international focus will be very attractive to a wide variety of partners and sponsors. The incubator's focus on a sector of high national as well as local economic import will likely generate close relationships with outside partners, more so than is typically the case for more generic incubators. And these relationships will make it more likely that sponsors will be found that will support the incubator's operations through annual financial contributions. The kinds of partners and sponsors that can be expected to work with the incubator are:

- Health care providers, including hospitals and senior assisted living centers, e.g., Adventist HealthCare, Holy Cross and university health systems;
- Private health insurance companies, e.g., MAMSI;
- Major consulting firms providing information management services to biomedical research firms and to health care providers, e.g., IBM;
- Major federal agencies with biomedical research and health care responsibilities, e.g., NIH and FDA;
- University schools and departments with expertise in biomedical research information systems and health care, e.g., Johns Hopkins Bloomberg School of Public Health and the University of Maryland School of Nursing;
- Montgomery College, which has a Health Information Technology program;
- Law firms and accounting firms, e.g., Shaw Pittman, Shulman Rogers, Ernst & Young and Grant Thornton.

The advantages of having one or more health care providers as partners of the incubator are significant. They could:

- Help the incubator management team better understand healthcare industry trends and service needs;
- Help in screening and selecting applicants that have the best potential of meeting the needs of the health care industry;
- Provide guidance to health care entrepreneurs in assessing market opportunities;
- Open doors for incubator firms to access the health care provider's resources and services or to beta test innovative products.

Having one or more law firms as partners would also provide significant benefits to the incubator and incubator firms:

- Free or pro bono legal services for a specified amount of time;
- Expertise in areas of particular need to incubator firms, e.g., regulatory issues, federal contracting practices or U.S./international legal issues. A law firm with

international offices could be very useful in terms of contacts abroad and knowledge about differences in business cultures.

Consultants have had conversations with a number of potential partners and sponsors. Both the law firms Shaw Pittman and Shulman Rogers have indicated a strong interest in being partners as well as being sponsors. Adventist HealthCare has expressed an interest in being a sponsor and in partnering with appropriate incubator firms that have products that will help improve Adventist's operations.

CORPORATE AND MANAGEMENT STRUCTURE

For the Rockville Life Sciences and Health Care Incubator to be successful, it must be more than moderately priced real estate. It must select the right kinds of companies to be admitted to the incubator, provide services and guidance to the firms and graduate them in a timely manner, hopefully equipped to be successful in the marketplace. Much of the success of the incubator is therefore determined by its organization and management.

Corporate Structure

There are two management options for Rockville to consider in organizing and managing its incubator: In one option, the City or County government itself could directly manage the incubator. For example, the incubator could be included as part of the County's portfolio of incubators, which currently includes MTDC and SSIC. The second option would be for the incubator to be managed by a non-profit organization REDI or some other separately created entity.

In Maryland, there are thirteen publicly funded technology incubators. Their management structures may be characterized as follows:

- Four are owned and managed by universities or colleges, all of which are public institutions:
    - Prince Georges County--University of Maryland Technology Advancement Program;
    - Baltimore County--UMBC Technology Center;
    - Washington County--Hagerstown Community College Technical Innovation Center;
    - Charles County--College of Southern Maryland Business Incubation Program.
- Three incubators are managed by government agencies:

- Montgomery County--MTDC and SSIC are owned by the County and managed by the County DED with separate subcontracts for facility and program support;

- Harford County--Higher Education and Advanced Technology (HEAT) Center, jointly owned by the County and State and operated by the County Office of Economic Development.

- And six incubators are managed by quasi-government, non-profit economic development corporations

    - Baltimore City--Emerging Technology Center (ETC), with three incubators, jointly owned by the City and State and managed by the Baltimore Development Corporation;

    - Howard County--Neo-Tech Center, which is managed by the Howard County Economic Development Authority;

    - Anne Arundel County--Chesapeake Innovation Center (CIC), which is currently operating out of leased space and is managed by the Anne Arundel Economic Development Corporation;

    - Prince George's County--Technology Assistance Center, which is owned by the County and managed by the County's Economic Development Corporation.

In summary, ten of the thirteen incubators are managed by non-government entities, either higher education institutions or non-profit organizations. All of the non-profit entities are the economic development arms of their counties. There are significant advantages for having incubators managed by non-profit entities as compared to direct government operation:

- There is more flexibility in procuring services and in addressing the changing needs of its client base.
- The incubator exists as its own profit and loss center, thereby enabling the City or County to hold incubator management more accountable for its performance.
- It avoids commingling of incubator funds with other City or County funds.
- It enables the incubator to leverage its resources by tapping into private sector resources for construction or operating funding.
- It enables the incubator to accept royalties or take an equity stake in the incubator's firms, thereby enabling the incubator to better recoup its investment in its client firms and possibly expand its financial base.

All of the above rationales would apply to the proposed Rockville incubator. Some of the issues are particularly relevant given the intent of having a focused life sciences/health care/international incubator. Some additional key issues are:

- Ability to accept funds from corporate sponsors;

- Ability to bring in a private investor group to participate in financing the building's construction. A non-government structure would enable the private investor to more easily enter into a deal and to later recoup its investment upon exit.

- Greater control over management decisions, such as the possibility of having increased staff resources (compared to other local incubators) in response to added specialized support services.

Conclusion. For these reasons, the Rockville incubator should be managed by a non-profit entity such as REDI or some other appropriate group. Making this recommendation, however, does not detract from the importance of achieving economies of scale and avoiding duplication by having the Rockville and County incubators share services, networks and marketing efforts where appropriate.

Board of Directors and Board of Advisors

The Rockville Life Sciences and Health Care Incubator should have two levels of oversight. The fiduciary responsibility for the management of the incubator should reside with a Board of Directors (BOD). The BOD will have responsibility for setting overall policy, hiring staff and approving budget and contract matters. Incubator staff will report to the BOD. In addition to the Executive Director, the BOD will act as the primary interface with funding sources and government entities, and it will work actively to raise funding for the incubator. BOD membership will include representatives from the City, County, State, REDI, other major investors and a select group from the business community and other major stakeholders.

The incubator should also have a broad-based Advisory Board to provide advice and support to the incubator staff and BOD on program activities. The Advisory Board will help set guidelines for admissions standards, services offered, milestones for progress and exit/graduation criteria. It will assist the Executive Director in reviewing applications and advise the Executive Director/BOD on approving or rejecting applications. In addition, the Advisory Board will be actively involved in periodically reviewing the progress of each tenant, advising the Program Director and Executive Director on follow-up action, and providing guidance and counseling to firms.

The Advisory Board will also serve an external role by assisting in recruiting qualified firms and securing needed business services. The Advisory Board will be predominantly comprised of representatives from the incubator's sponsors and partners legal and accounting firms, health care providers, higher education institutions, federal

agencies and business sponsors –as well as seasoned technology entrepreneurs and high tech investment professionals.

Incubator Staff

The incubator should have three full-time staff members - an Executive Director, a Program Director and an administrative assistant/receptionist. This staffing level is in keeping with the best practices standards identified by NBIA. It would represent a higher staff-to-firm ratio than the County currently maintains, but is necessary in order to provide the specialized level of services required and also to recruit additional partners and sponsors to support the incubator's programs. The Executive Director will provide both the overall direction of the incubator as well as the management of its day-to-day operations. Some of the most important responsibilities of the Executive Director will be:

- Marketing to generate applications
- Directing the selection of new incubator tenants;
- Developing and adhering to the incubator's budget;
- Overseeing staff and any contractual obligations of the incubator;
- Providing leadership and staff to the incubator's BOD and Advisory Board;
- Maintaining good working relations with the Board of Directors, REDI and City, County and State government;
- Working closely with stakeholder organizations to maintain support; and
- Raising funds from additional sponsors, TEDCO and other government sources.

The Program Director will have the responsibility of organizing and delivering program services to incubator firms. These responsibilities will include:

- Organizing the network of service providers;
- Determining what added resources are needed, such as a health care and/or international network, and seeing that those needs are met;
- Matching service providers with appropriate incubator firms;
- Facilitating access to various sources of financing;
- Overseeing the progress of tenants in reaching their growth milestones; and
- Reporting to the Executive Director and to the Board of Advisors and Board of Directors as appropriate.

INCUBATOR SPACE, SIZE, LOCATION AND FUNDING

Space Configuration

The design of the Rockville incubator must reflect the particular uses of the facility as an incubator. Given the software development basis of the incubator and its

international component, it will be essential to have a state-of-the-art telecommunications infrastructure. This is generally required for any first class office space today. And since there will be no wet labs in this incubator, there will be considerably less cost involved for construction and equipment. The incubator facility should have these characteristics:

- Class A or B+ Office space outfitted with state-of-the-art broadband internet connections and telecommunications infrastructure.
- Common area space to be shared by tenants, including reception, conference rooms, kitchen/lounge, mailroom and storage space.
- Security system, including power interruption protection.
- A/V system in conference room.
- Shared office equipment including fax, copiers, printers etc.

Incubator Size

NBIA recommends 20,000 square feet as the minimum size for an incubator. The rationale for this size, based upon NBIA's evaluation of incubator operations, pertains to achieving economies of scale with regard to space and staffing. The added common space and staffing that incubators require boost the underlying costs of an incubator over those for traditional office space. A small incubator, i.e., one less than 20,000 sq.ft., will still require the same staffing and common space, but the average cost will be higher due to less space and, hence, rental income. By the same token, increasing the incubator's size would be even more cost efficient. Were an incubator to include wet labs, the minimum size would need to increase due to the additional space required for this function. Rockville should therefore begin its site search using the NBIA guideline of having an incubator with at least 20,000 sq.ft.

Siting Options

In examining site options for an incubator, several important factors need to be addressed that will affect a location's suitability:

- Capital and operating costs;
- Short-term versus long-term cost;
- Timeliness of availability;
- Access to parking/transportation; and
- Visual impact.

Each of these criteria cannot be addressed in detail in this phase of the study, which is designed to determine the feasibility of having an incubator. The next phase of the study—the business plan—will analyze specific options, particularly in terms of their estimated costs, and will present both construction and operating cost financial projections. What this section will present are the basic pros and cons of ownership and

leasing options, which will affect all the above criteria, along with potential site options identified in the City.

Leased Facility

Leasing 20,000 square feet of office space is the simplest option and would allow the City and REDI to launch the project quickly. The preferred location would be along Rockville Pike, as close to the Twinbrook or Rockville Metro stations as possible. One possibility would be the recently announced Twinbrook Commons development proposed by JBG Cos. Most of the strip along Rockville Pike from Route 28 to Twinbrook Parkway is in a federal HUB Zone, which would afford companies located there preferential treatment in competing for federal contracts.

Advantages of the Lease Option:

- Ease of implementation
- Lower up-front capital costs
- Faster time to launch the project
- Ease of budgeting and cost control
- No maintenance responsibility with full service rent
- Opportunity to partner with private developers who have firm plans to redevelop sites near Metro stations along Rockville Pike; may result in somewhat lower build-out costs or rental rates.

Disadvantages of the Lease Option:

- Requires the City to commit to a lease of three to five years or more.
- Likely operational shortfalls between actual cost of space and rental income. In addition to a likely income shortfall at the start-up phase of the incubator (until there is full occupancy), there are also likely to be annual shortfalls due to:
  - Rent for common space not covered in tenant rents – unless incubator is willing to charge higher than market rates to cover common space;
  - Periods of vacancy due to normal company turnover upon graduation;
- In the long run, the lease option may cost more than ownership;
- No construction funding would be possible from TEDCO, since TEDCO prefers to provide capital investment to an owned facility;
- There would be little opportunity to attract private investors to participate in the project without an ownership component; and
- A leased facility, if it were located within an existing larger building, would have less visibility and symbolic value for the City than a stand-alone building.

Build-to-Suit Facility

Most Maryland business incubators are located in "build-to-suit" facilities that were either constructed from the ground up (e.g., MTDC, TAP) or were renovations of existing structures (e.g., ETC, NeoTech, UMBC). Montgomery County's first incubator was located in a temporary leased facility while the County was arranging funding for its permanent build-to-suit MTDC facility. Anne Arundel, whose CIC incubator is currently located in 20,000 sq.ft. of leased office space, is actively working toward developing a permanent home in a build-to-suit facility.

Most build-to-suit incubators have been developed from properties already owned by local governments or higher education institutions. Eliminating the cost of land makes the project more financially viable. Both Montgomery County incubators are build-to-suit facilities constructed on ground owned by the County. The TAP and UMBC incubators are built on university property. And ETC incubators in Baltimore were developed on properties owned by the public sector.

A preliminary review of existing build-to-suit opportunities on City- or County-owned property in Rockville reveals only one viable opportunity in the short run—the "Thompson Dairy Farm" structures at the King Farm, which would be a re-use rather than a new build-to-suit structure. Other potential opportunities for build-to-suit projects include the School Board's surplus property on Stonestreet and commercial property in the Southlawn Drive area. The potential use of either area is quite indeterminate at this time. The Southlawn area, a collection of older warehouse and industrial buildings, has a lot of potential for redevelopment as R & D space; however, a lengthy planning process would need to take place, and land and building for an incubator, though less expensive than in other areas of Rockville, would still have to be purchased.

The best option that has been identified to date is the King Farm site, which is City-owned and across from the Shady Grove Metro Station. It has four major structures: a private residence built in 1945, two barns, both constructed in the early 1930s, and a garage with offices on top. The residence is currently on the market for sale. The garage/office structure has been leased to the Rockville Model Railroad Association. The City is currently considering re-use options for the barns and silos, which total about 20,000 to 22,000 square feet including the upper floors previously used to store hay. The barns/silos and house all appear to be structurally sound. Because the King Farm properties represent a unique opportunity—both because of availability and their potential to provide a distinct "statement" about the City's commitment to high tech—this option should be seriously explored by the City as a home for the Life Sciences and Health Care Incubator. However, all other opportunities for a build-to-suit option should continue to be explored. The advantages and disadvantages of a build-to-suit option are presented as follows:

Advantages of the Build-to-Suit Option:

- Public or non-profit ownership makes long-term costs easier to control;

- Depending on rental income and level of support from various sponsorships, the potential for having any recurring long-term operational costs adversely impact the City could be minimized;
- Use of site and/or buildings already owned by City or County would provide significant added savings in capital costs;
- Public or non-profit ownership would enable the City and REDI to leverage their investment with County, State, TEDCO and private sector investors;
- A stand-alone facility would provide higher visibility and make a clearer statement about the City's commitment to high tech development.

Disadvantages of the Build-to-Suit Option:

- More complex and time consuming to put a deal together; many unknowns until specific site identified, costs determined and funding package assembled;
- Requires higher capital investment;
- If land and/or structure are publicly owned, must compete with alternative uses;
- Facility maintenance responsibilities.

Conclusion

The City should consider the best lease and build-to-suit options for locating an incubator in terms of capital and operating costs, ease of implementation, ability to attract co-investors and attractiveness as a symbol of the City's commitment to high tech development.

Funding Options

Because incubators are by definition intended to serve a high-risk population of early stage companies, financing incubators is inherently a public function. In general, public financing is primarily provided for capital construction costs, while operating costs are assumed to be paid out of rental income. Virtually all incubators in Maryland conform to this model. One exception is the TAP incubator in College Park, where the University provides considerable subsidy for staffing. In the case of Anne Arundel's new CIC incubator, the County has provided all up-front costs, including leasing and staffing, although their long-term objective is for the incubator to be operationally self-sustaining.

Public financing of incubator construction is limited at the State level to publicly owned facilities. TEDCO, for example, restricts its contributions in this manner. This policy is understandable, since public agencies are more comfortable in knowing that the public's investment has a permanence that a leased facility cannot protect. TEDCO has provided up to $1 million toward construction financing per project per jurisdiction per year. TEDCO also requires a one-to-one match by the local jurisdictions for each project.

In addition to TEDCO, DBED has also provided additional funding for certain incubator projects out of returns from its economic incentives program.

A few incubators (e.g., MTDC and ETC) have been constructed through the use of State revenue bonds through the Maryland Economic Development Corporation (MEDCO). This practice has had the serious downside of saddling the local jurisdiction and incubator with a debt service to pay off, thereby draining away rental income from operating functions of staffing and services. This situation is now strongly avoided.

One advantage of a Rockville incubator is that it brings one additional player to the financing table. Instead of the usual situation of having the County and State (including TEDCO) as the only financial backers, a Rockville incubator would have the City, County and the State as partners. In the event that City-owned property can be used, the City's contribution would be made that much easier to provide.

The Consultants also believe that private sector resources can be brought into the financing mix for both construction costs and operating expenses. Initial conversations have been held with a private investor group that is seriously interested. On the operating cost side, there is considerable potential for bringing in sponsorship money that would supplement rental income for augmenting staffing and program services. As noted earlier in this report, two law firms and a health care provider have expressed initial enthusiasm for being sponsors.

NEXT STEPS

Once the feasibility of the Rockville Life Science and Health Care Incubator has been accepted by the City and REDI, the next task is to develop a concrete plan for implementing this concept. That plan would include more specific site analysis, cost analysis and funding strategy. The following steps are recommended:

- Explore with the City and County location options in Rockville for either ownership or lease. These options would include:
    - Available publicly owned sites in Rockville that could be used for a build-to-suit or re-use facility, including the possibility of using the King Farm barns and house;
    - Available commercial property appropriate for purchase for new construction or re-use;
    - Existing or planned commercial office space for lease, particularly where City partnerships are involved that could leverage favorable consideration for an incubator.

- Discuss with the County its support for a Rockville incubator, including financial backing, support for State backing and coordination with other County incubators;

- Discuss with TEDCO and DBED their financial support for the incubator;

- Pursue partnership opportunities with federal agencies, including NIH and FDA, and higher education institutions, including Johns Hopkins, the University of Maryland and Montgomery College;

- Pursue sponsorship opportunities with private sector organizations, including law firms, accounting firms, health care providers and consulting firms, with the objective of gaining some preliminary commitments;

- Develop an incubator business plan that would focus on one or two site development options and develop a business model for financing, construction and operation of the incubator. This would include:
  - Projected operating financial statements;
  - Corporate and management structure;
  - Program services;
  - Implementation schedule.

ADDENDUM I—LETTER OF ENGAGEMENT

Greater Rockville Partnership Agreement for Consultant Services

This agreement made this 18th day of December, 2003 by and between the Greater Rockville Partnership (GRP), hereinafter called the Client, acting herein by and through its Executive Director who is duly authorized so to act and Snyder Consulting Services, a company, hereinafter called the Consultant.

Whereas the Client desires to employ a Consultant to furnish services for the Client's project consisting of a Technology Incubator Feasibility Study for an incubator located within the municipal limits of Rockville, Maryland, and

Whereas, the Consultant has submitted a Proposed Study Outline for aforesaid services signed by Robert G. Snyder, the terms and conditions set forth in said proposal, and cover letter dated July 21, 2003, which are incorporated herein, by reference, it is hereby agreed that upon signature on this document that the Consultant shall furnish services and the Client shall make payment for same according to the attached Schedule.

This contract will remain in effect from December 22, 2003 until June 30, 2004 unless extended by written mutual consent of the Client and Consultant.

Neither the Client's review, approval or acceptance of, nor payment for, the services rendered under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Consultant shall be and remain liable to the Client in accordance with applicable law for all damages caused by the Consultant's negligence or other failure to perform any of the services to be furnished under this contract, and

Unless otherwise stated in the Scope of Work, the rights and remedies of the Client provided for under this contract are in addition to any other rights and remedies provided by law, and

If the Consultant is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder, and

If Witness Whereof, the parties to these presents have hereunto caused these presents to be executed in duplicate the day and year above mentioned.

ATTEST: _____

_____ By: _____

ATTEST: Date: _____

_____

ADDENDUM II – PHASE I PROPOSAL OUTLINE AND QUALIFICATIONS

INCUBATOR FESIBILITY STUDY FORROCKVILLE, MARYLAND PROPOSED STUDY OUTLINE

The feasibility study will assess the market for a high tech incubator in Rockville, and the type of incubator that would be most appropriate for Rockville. The assessment will include: 1) supply-demand analysis of the current and projected market for incubators in the Rockville/Montgomery County area; 2) type of incubator that will best meet the City's economic development goals as well as differentiate it from other incubators in the region; 3) benefits that an incubator would bring to Rockville; and 4) framework for implementation.

1. Market Analysis

- Examine current and projected industry concentrations of high tech industry (biotech, IT and telecom) to determine the relative strengths of Rockville's high tech economic base;
- Analyze the entrepreneurial and high tech resource base of Rockville economy -- private sector, federal labs, academia —that will drive Rockville's future growth;
- Examine broad scientific, economic and political trends, e.g., homeland security, globalization/foreign investment and nanotechnology, that may also impact Rockville's future growth;
- Analyze the regional and state incubator environment -- location and number of incubators, number of firms served, and industry focus-- to determine their adequacy in meeting market demand;
- Identify gaps, if any, in projected supply and demand, either from overall growth or from growth in technology and market areas not being addressed;
- Assess whether the overall market warrants a new incubator in Rockville.

2. An Incubator that Best Meets Rockville's Needs

- Define the industry and market focus for a Rockville incubator based upon the market analysis;
- Analyze how an incubator would support the City's economic development strategy and goals and how it fits with the County's strategy and goals;
- Recommend innovative ways in which a City incubator could have a unique focus that would differentiate it from others in the region in its technology or market focus (e.g., bioinformatics, security, international markets).

3. Economic Benefits

- Evaluate economic benefits of an incubator to Rockville, including employment and revenue generation.

4. Framework for Implementation

- Recommend incubator size and number of firms to be housed there;
- Identify potential sites for locating an incubator;
- Identify general and special facility infrastructure needs, e.g., common space, power, telecom, air and water handling (if bio wet labs included);
- Identify business support services to be provided to tenants;
- Discuss organizational structure—legal entity, oversight, management and staffing;
- Provide cost estimate and funding options.

QUALIFICATIONS

The consultants, Robert Snyder, Snyder Consulting Services, and Duc Duong, DDI Associates, each have over 20 years experience in Montgomery County, the region and the State of Maryland in incubator planning and operation, high tech economic development and support of entrepreneurs.

Technology Incubator Development and Operation

Snyder and Duong have performed feasibility assessments and business plans for the development of high tech and biotech incubators in Frederick and Howard counties. Their work for Howard County in 1998 resulted in the successful launch of the NeoTech Center. Their work for Frederick County, which began in 2002, is currently in the early stages of implementation. Their work has included market assessment; site selection analysis; organization and management planning; financing; staffing; and professional and technical services. Their work has included the development of innovative approaches to financing and flexible modular construction.

Duong was responsible for the development of the Maryland Technology Development Center (MTDC) in Rockville, a 60,000 square foot biotech and IT incubator, which was launched in 1999 with funding from Montgomery County and MEDCO. He has been the Program Director of MTDC since its launch, first as a staff member of the Tech Council of Maryland (TCM) and, since 2001, under personal contract. MTDC has been one of the most successful incubators in Maryland, remaining virtually fully occupied since its opening and having 14 graduates in only three years of operation.

Economic Development

Duong and Snyder have an intimate knowledge of the high tech economy in Montgomery County, including the biotech, information technology, telecommunications and environmental industry sectors based upon many years of working in local and state economic development agencies and in the nonprofit association sector. For 20 years Duong worked in the Montgomery County Office, now Department, of Economic Development, for most of them as Assistant Director for Business Development. There he was responsible for formulating strategy for positioning the County as a premiere high tech destination. The most notable accomplishment was the development of the Shady Grove Life Sciences Center, the 300 acre, County-owned park that provided a focus for the County's efforts to become a biotech hub. Duong was also responsible for the successful marketing initiative of branding the region as the "I-270 High Technology Corridor."

Snyder worked for five years in the late 1980s in the Montgomery County Office of Economic Development where he worked on planning initiatives to support the development of the County's high tech sector. Most notably, he helped develop the

academic campuses for Johns Hopkins and University of Maryland in the Shady Grove Life Sciences Center and in the development and founding of the Montgomery County High Tech Council (now the Tech Council of Maryland) as a means of coalescing the County's nascent high tech sector. In the mid-1990s Snyder worked for Maryland DBED where he was responsible for planning and retention efforts in information technology, telecommunications and environmental technology.

Services to Entrepreneurial Firms

Snyder's and Duong's expertise in incubators and what it takes to produce successful graduates is informed by their experience in providing services to entrepreneurial high tech firms. Since 1997 Snyder has been a consultant providing business planning and access to financing to start up and early stages high tech and biotech entrepreneurs. While he was Vice President of the Suburban Maryland High Tech Council in the early 1990s, he developed mentoring and reduced cost professional services programs and also served as director of the Baltimore-Washington Chapter of the MIT Enterprise Forum. He also organized and led Environmental Network and was staff leader of the IT and Biotech networks.

As Program Director of MTDC, Duong has organized a wide range of professional services firms to provide reduced cost services to incubator tenants, including law, accounting and marketing. In addition, he has organized monthly speakers lunches with particular emphasis on sources of financing. While he was Program Director of TCM, he also served as director of TCM's Maryland Bioscience Alliance and the IT Network and helped organize the first annual BioForum. He has also developed an extensive knowledge of international businesses and has cultivated contacts with trade and business organizations in Europe and Asia. He has also developed working relationships with several international technology business incubators.